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WHAT IS CLAIMED IS: add a An improved method of cloning a viable animal by nuclear transfer comprising the steps of: 2 inserting a NENS somatic cell, or nucleus isolated form (a) 3 said somatic cell, deriving from a somatic cell culture having undergone 3 or more 4 passages, into an enucleated oocyte to form a cybrid; 5 activating the cybrid; 6 (b) OSZEDH D10401 culturing the activated cybrid; 7 (c) transferring the activated cybrid of step (c) into an (d) 8 appropriate host such that the activated cybrid develops into a fetus; 9 maintaining the fetus in the host until the fetus is capable of (e) 10 surviving and maturating into a viable animal outside of said host. 11 An animal made by the method of claim 1. 2. 1 An organ or tissue made by the method of claim 1. 3. 1 An embryo made by the method of claim 1. 4. 1 A fetus made by the method of claim 1. 1 A cell line derived from cells made by the method of claim 1. 1 6.

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1		7.	An improved method of cloning a mammal by nuclear
2	transfer comp	rising tl	ne introduction of a donor cell from the mammal, or donor
3	cell nucleus, i	nto an	enucleated oocyte of the same species as the donor cell to
4	form a cybrid,	insertii	ng the cybrid into the uterus of a host mother of said species
5	so as to cause	e impla	ntation of the cybrid into the uterus to form a fetus, and
6	permitting the	fetus to	develop into the cloned mammal wherein the improvement
7	comprises usin	ng as th	e donor cell, or donor cell nucleus, a NENS somatic cell that
8	has been cultu	red for	more than five (5) passages.
		_	
1		8.	An animal made by the method of claim 7.
1		9.	An organ or tissue made by the method of claim 7.
			/ /
1		10.	An embryo made by the method of claim 7.
1		11	A few and by the method of claim 7
1		11.	A fetus made by the method of claim 7.
1		12.	A/cell line derived from cells made by the method of
2	claim 7.	,	
2	Claim 7.		
1		/13.	A method for cloning an animal, said method comprising
2	the steps of:		
3		(a)	obtaining NENS somatic cells;
-	/	\/	3

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4	(b)	culturing said NENS somatic cells for 5 or more passages;
5	(c)	inserting the cultured NENS somatic cells of step/(b), or
6	nucleus isolated forn	n said cultured NENS somatic cell, into an enucleate oocyte
7	to form a cybrid;	
8	(d)	activating the cybrid;
9	(e)	culturing the activated cybrid;
10	(f)	transferring the activated cybrid of step (e) into an
11	appropriate host such	that the activated cybrid develops into a fetus;
12	(g)	maintaining the fetus in the host until said fetus is capable
13	of surviving as a viat	ole animal outside of said host.
1	14.	An animal made by the method of claim 1.
1	15.	An organ or tissue made by the method of claim 1.
	,	
1	16./	An embryo made by the method of claim 1.
1	/17.	A fetus made by the method of claim 1.
1	18.	A cell line derived from cells made by the method of
2	claim 1/	

		/
1	19.	A method for cloning a mammal with a cloning efficiency
2	of better than ten perc	cent (10%), said method comprising the steps of:
3	(a)	inserting a somatic cell, or nucleus isolated form said
4	somatic cell, derivin	g from a somatic cell culture having undergone 5 or more
5	passages, into an enu	cleate oocyte to form a cybrid;
6	(b)	activating the cybrid;
7	(c)	culturing the activated cybrid;
8	(d)	transferring the activated cybrid of step (c) into an
9	appropriate host such	that the activated cybrid develops into a fetus;
10	(e)	maintaining the fetus in the host until the fetus is capable of
11	surviving and matura	ting into a viable animal outside of said host;
12	wherein the cloning e	efficiency of such method is better than ten percent (10%).
1	20.	A method for the cloning of a male mammal, said method
2	comprising the steps	of:
3	(a)	inserting a male somatic cell, or nucleus isolated form said
4	somatic cell, derivin	g from a somatic cell culture having undergone 5 or more
5	passages, into an enu	cleate oocyte to form a cybrid;
6	(b)	activating the cybrid;
7	(c)	culturing the activated cybrid;
8	(d)	transferring the activated cybrid of step (c) into an
9 /	appropriate host such	that the activated cybrid develops into a fetus;
10/	(e)	maintaining the fetus in the host until the fetus is capable of
11	surviving as a viable	animal outside of said host.

1	21. The method of claim 20 wherein the male somatic cell is a
2	male NENS somatic cell.
1	22. The method of claim 20 wherein the said male somatic cell
2	derives from a somatic cell culture having undergone 10 or more passages.
1	23. A method for improving blastocyst development rates from
2	cybrids produced by nuclear transfer from a donor cell to an enucleated oocyte,
3	said method comprising the steps of:
4	(a) activating the enucleated oocyte with an inhibitor selected
5	from the group consisting of: protein kinase inhibitor and a protein synthesis
6	inhibitor, prior to, during or after fusion with the donor cell nucleus; and
7	(b) electrostimulating the cybrid prior to, during or after fusion.
1	24. A method for producing an animal clone with targeted
2	genetically-engineered targeted genetic alterations, said method comprising the
3	steps of:
4	(a) altering in a targeted manner the nuclear DNA of somatic
5	cells to produce genetically-altered cells;
6	(b) culturing the somatic cells of step (a) for five (5) or more
7	passages to allow selection for the genetically-altered cells;
8	(c) inserting the altered nuclear DNA of the somatic cells of
9	step (b) into an enucleate oocyte to form a cybrid;

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10	(d)	activating the cybrid;
11	(e)	culturing the activated cybrid to form an embryo;
12	(f)	transferring the embryo into an appropriate host such that
13	the embryo develops	into a fetus;
14	(g)	maintaining said fetus in said host until said fetus is capable
15	of surviving and mate	urating into a viable animal outside of said host.
1	25.	An animal made by the method of claim 1.
1	26.	An organ or tissue made by the method of claim 1.
-	20.	And or closed in the mount of chains in
_		
1	27.	An embryo made by the method of claim 1.
1	28.	A fetus made by the method of claim 1.
1	29.	A cell line derived from cells made by the method of
2	claim 1.	
1	30.	An improved method of cloning a mammal by nuclear
2	transfer comprising:	
	/	

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3	(a) the introduction of a donor cell from the mammal, or donor
4	cell nucleus, into an enucleated oocyte of the same species as the donor cell to
5	form a cybrid,;
6	(b) inserting the cybrid into the uterus of a host mother of said
7	species so as to cause implantation of the cybrid into the uterus to form a fetus,
8	and permitting the fetus to develop into the cloned mammal
9	wherein the improvement comprises using as the donor cell, or donor cell nucleus,
10	a somatic cell that has been cultured for more than five (5) passages, and wherein
1	the donor cell, or donor cell nucleus, has been genetically transformed to comprise
12	at least one addition, substitution or deletion of a nucleic acid or nucleic acid
13	sequence.
1	31. An animal made by the method of claim 30.
1	32. An organ or tissue made by the method of claim 30.
1	33. An embryo made by the method of claim 30.
1	34. A fetus made by the method of claim 30.
1	35. A cell line derived from cells made by the method of
2	claim/30.

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1	36.	A process by which genetically-altered and genetically-non-
2	altered animals may	be produced, such process comprising the steps of:
3	(a)	isolating a diploid donor cell;
4	(b)	culturing the diploid donor cell for more than about 20 cell
5	doublings;	
6	(c)	optionally altering in a targeted manner the genome of one
7	or more cells of the c	liploid donor cells of step (b);
8	(d)	optionally screening and selecting from the cells of step (c)
9	stable desired mutan	ts;
10	(e)	reconstituting an embryo employing nuclei transfer
11	techniques using nuc	elei from the cells of step (b), or optionally steps (c) or (d);
12	(f)	culturing the embryo in vivo or in vitro to a blastocyst;
13	(g)	optionally screening and selecting from the blastocysts of
14	step (f) stable desired	d mutants;
15	(h)	transfer of the blastocysts of steps (f) or (g) to medium
16	capable of allowing	the blastocyst to develop into a term animal.
	/	
1	3 7.	An animal made by the method of claim 36.
1	38.	An organ or tissue made by the method of claim 36.
•		The organica about made by the method of claim 50.
1	39.	An embryo made by the method of claim 36.

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1	40.	A fetus made by the method of claim 36.
1	41.	A cell line derived from cells made by the method of
2	claim 36.	
1	42.	An improved method for cloning a term animal, said
2	method comprising t	he steps of:
3	(a)	inserting a somatic cell, or nucleus isolated form said
4	somatic cell, derivir	ng from a somatic cell culture having undergone 5 or more
5	passages, into an enu	cleate oocyte to form a cybrid;
6	(b)	optionally activating the cybrid;
7	(c)	culturing the cybrid;
8	(d)	transferring the cybrid of step (c) into an appropriate host
9	such that the cybrid	levelops into a fetus;
10	(e)	maintaining the fetus in the host until the fetus is capable of
11	surviving and matura	ting into a term animal outside of said host.
1	/ 43.	An animal made by the method of claim 42.
1	44.	An organ or tissue made by the method of claim 42.
1	45.	An embryo made by the method of claim 42.

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1 46. A fetus made by the method of claim 42.

1 A cell line derived from cells made by the method of 2 claim 42.